IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of:

Applicant(s): Edward D. Glas *et al.*   Examiner: Phuong Huynh

Serial No: 10/810,944   Art Unit: 2857

Filing Date: March 26, 2004

Title: LOAD TEST SIMULATOR

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Dear Sir:

Applicants submit this brief in connection with an appeal of the above-identified patent application. Payment of the $500.00 fee for filing this Appeal Brief is submitted herewith. In the event any additional fees may be due and/or are not covered by the fee submission, the Commissioner is authorized to charge such fees to Deposit Account No. 50-1063 [MSFTP637US].

I.   Real Party in Interest (37 C.F.R. §41.37(c)(1)(i))

The real party in interest in the present appeal is Microsoft Corporation, the assignee of the present application.

II.   Related Appeals and Interferences (37 C.F.R. §41.37(c)(1)(ii))

Appellants, appellants' legal representative, and/or the assignee of the present application are not aware of any appeals or interferences which may be related to, will directly affect, or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III.   Status of Claims (37 C.F.R. §41.37(c)(1)(iii))

Claims 1-21 stand rejected by the Examiner. The rejection of claims 1-21 is being appealed.

IV.   Status of Amendments (37 C.F.R. §41.37(c)(1)(iv))

No amendments were submitted after the Final Office Action. (*See* Applicants' Reply to Final Office Action dated December 15, 2006).

V.   Summary of Claimed Subject Matter (37 C.F.R. §41.37(c)(1)(v))

A.   <u>Independent Claim 1</u>

Independent claim 1 relates to a computer-implemented system that test loads a server comprising a dynamic load adjustor component that dynamically adjusts user characteristics based at least in part on a browser type, for distribution thereof as a percentage of total requests sent to a server being load tested. By dynamically adjusting the user characteristics, the system can simulate different users' behavior, and therefore different operating environments for the load test. (*See* Fig. 1 and accompanying text at page 6, lines 14-30).

B.   <u>Independent Claim 10</u>

Independent claim 10 relates to a machine-implemented system that stresses a server, comprising an execution engine that generates a scenario that loads the server *via* a plurality of users, the plurality of users dynamically adjusted based on predetermined weightings of a user

profile having weighted characteristics that comprises at least a browser type therein, wherein the scenario distributes user characteristics as a percentage of total requests. Thus, different scenarios and environments can be dynamically created by adjusting the number of users and characteristics to stimulate different stress situations for the server. (*See* Fig. 6 and accompanying text at page 11, lines 9-23).

C.   Independent Claim 16

Independent claim 16 relates to a computer-implemented method for load testing a server comprising assigning weights to user characteristics in a user profile, dynamically adjusting the user characteristics based on one or more browser types during the testing of the server, and distributing the user characteristics as a percentage of total requests sent to the server. This allows an administrator to place controllable amounts of stress on servers for load testing the server. (*See* Fig. 2 and accompanying text at page 7, line 1 – page 8, line 12).

D.   Independent Claim 21

Independent claim 21 relates to a machine-implemented system for test loading a server comprising means for dynamically adjusting user characteristics while loading the server and means for distributing the user characteristics as a percentage of total requests sent to the server, each user characteristic including at least a browser type. In this regard, the server can be test loaded with real user characteristics to simulate an actual usage environment. (*See* Fig. 1 and accompanying text at page 6, lines 14-30).

The means for limitations described above are identified as limitations subject to the provisions of 35 U.S.C. §112 ¶6. The structures corresponding to these limitations are identified with reference to the specification and drawings in the above-noted parentheticals.

VI.   Ground of Rejection to be Reviewed (37 C.F.R. §41.37(c)(1)(vi))

A.   Claims 1-21 stand rejected under 35 U.S.C. §101 as being allegedly directed toward non-statutory subject matter.

VII.   Argument (37 C.F.R. §41.37(c)(1)(vii))

A.   Rejection of Claims 1-21 Under 35 U.S.C. §101

Claims 1-21 stand rejected under 35 U.S.C. §101 because the claimed invention is allegedly directed toward non-statutory subject matter. More specifically, the Examiner asserts that independent claims 1, 10, 16, and 21 provide no physical transformation, nor is any useful, concrete, or tangible result produced. It is respectfully requested that rejection of these claims be reversed for at least the following reason. Claims 1, 10, 16, and 21 recite statutory subject matter as they produce a useful, concrete, and tangible result such to be classified as patentable subject matter according to 35 U.S.C. §101.

> Because the claimed process applies the Boolean principle [abstract idea] *to produce a useful, concrete, tangible result* ... on its face the claimed process comfortably falls within the scope of §101. *AT&T Corp. v. Excel Communications, Inc.*, 172 F.3d 1352, 1358. (Fed.Cir. 1999) (Emphasis added); *See State Street Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368, 1373, 47 USPQ2d 1596, 1601 (Fed.Cir.1998). The inquiry into patentability requires an examination of the contested claims to see if the claimed subject matter, as a whole, is a disembodied mathematical concept representing nothing more than a "law of nature" or an "abstract idea," or if the mathematical concept has been *reduced to some practical application rendering it "useful*." *AT&T* at 1357 *citing In re Alappat*, 33 F.3d 1526, 31 1544, 31 U.S.P.Q.2D (BNA) 1545, 1557 (Fed. Cir. 1994) (Emphasis added) (holding that more than an abstract idea was claimed because the claimed invention as a whole was directed toward forming a specific machine that produced the useful, concrete, and tangible result of a smooth waveform display).

Independent claim 1 (and similarly independent claims 16 and 21) recites *a computer-implemented system that test loads a server comprising a dynamic load adjustor component that dynamically adjusts user characteristics based at least in part on a browser type, for distribution thereof as a percentage of total requests sent to a server being load tested*. This result of dynamically adjusting user characteristics is both concrete and tangible as adjustment of such characteristics would naturally modify the state of the affected computer-implemented system and can consistently do so based on the certain characteristics. Also, the functionality of dynamically adjusting user characteristics mitigates the need for an administrator or human entity to perform such adjustment, and thus renders the claimed subject matter useful as well. In

this same way, using these characteristics to control distribution of requests when test loading a server, as recited in the subject claims, is also useful, concrete, and tangible at least because the test load placed on the server (distribution of requests) is determined and/or modified by the adjustment of the user characteristics; this is the result produced by the subject claims. Thus, in view of controlling case law, since the claims recited produce a useful, concrete, and tangible result, they encompass statutory subject matter.

Moreover, as a guideline for showing utility, MPEP § 2106 provides "[r]egardless of the form of statement of utility, *it must enable one ordinarily skilled in the art to understand why the applicant believes the claimed invention is useful*." The aforementioned utility of mitigating human intervention would be easily understood by one having ordinary skill in the art, and does not need to be recited in the claim for at least this reason. The Specification asserts multiple practical utilities including "scenarios can include a plurality of test mixes, load profiles and user profiles that are statistically determined based on records of web logs." Providing a computer-implemented system to perform such tasks exhibits practical utility and one having ordinary skill – *e.g.* one who would be responsible for manually creating such scenarios in absence of the claimed subject matter – would undoubtedly find such practical utility in the claims as recited. In view of at least the foregoing, the subject matter recited in independent claims 1, 16, and 21, as well as claims 2-9 and 17-20 which respectively depend therefrom, satisfy the utility guidelines and also produce a useful, concrete, and tangible result that falls within the scope of 35 U.S.C. § 101.

Furthermore, the Examiner repeatedly recites that the claims fail to produce a physical transformation. The Federal Circuit has held, and indeed the MPEP also provides, that a physical transformation "is not an invariable requirement, but merely one example of how a mathematical algorithm [or law of nature] may bring about a useful application." MPEP § 2106, *quoting AT&T Corp. v. Excel Communications, Inc.*, 172 F.3d 1352, 1358-59. Thus a physical transformation is not required; rather only a useful, concrete, and tangible result as shown above. Also, the Examiner asserts that the result produced must be communicated to a user, displayed, or stored in any tangible form for later use or access. The Examiner has provided no support for this assertion, and in fact, no support exists in law or procedure. Even so, one having ordinary skill in the art would recognize that the claimed subject matter uses the scenarios and user characteristics to test load a server, and such a result is extremely useful to an administrator

testing the sufficiency of a server in a given environment. Thus, the result is communicated to the administrator in this way. Again, the utility is evaluated from the standpoint of one having ordinary skill in the art and in light of the specification. For at least these reasons, the subject matter as claimed exhibits practical utility as described above, and thus this rejection should be reversed.

Additionally, the Examiner asserts that claim 10 is rejected under 35 U.S.C. §101 for the same reasons. It is requested that this rejection be reversed for at least the following reason. Claim 10 recites a result that is useful, concrete, and tangible as well. The useful result recited in claim 10 is a scenario that loads a server based on user profiles to simulate server requests that are typical of users within an environment; the scenario is produced by an execution engine. Because the scenario comprises user profile information used to test load a server, the scenario that is generated is concrete and tangible. The fact that the scenario can *load a server via a plurality of users* is also concrete and tangible as such loading will modify the state of the server. Again, this result is also useful as the scenario, and the loading thereof, help simulate a real-world usage environment for a server to determine how the server will handle a plurality of requests in the typical usage pattern. Also, the scenario is created automatically without the need for total human intervention. One having ordinary skill would appreciate the utility of claim 10 at least in this automation aspect. In view of the useful, concrete, and tangible results produced by claim 10 and the Federal Circuit opinion handed down in *AT&T Corp. v. Excel Communications, Inc.*, 172 F.3d 1352, 1358, rejection of this claim, as well as claims 11-15 which depend therefrom, under 35 U.S.C. §101 should be reversed as well.

Applicants' representative also reminds Examiner that claims 1, 10, 16, and 21, if evaluated as pertaining to software code, are still patentable in light of recent Federal Circuit opinion in *Eolas Techs., Inc. v. Microsoft Corp.*, 399 F.3d 1325, 1338 (Fed. Cir. 2005), wherein the court stated:

> Title 35, section 101, explains that an invention includes 'any new and useful process, machine, manufacture or composition of matter.' Without question, *software code alone* qualifies as an invention eligible for patenting under these categories, at least as processes. (emphasis added) (citations omitted).

This case further emphasizes that any new useful process, machine, *etc.*, is a patentable invention such as the claimed subject matter as shown above. The opinion also affirms that if claims 1, 10, 16, and 21 are viewed as software code, the subject matter as recited undeniably falls within the bounds of this holding. Additionally, the Examiner asserts that this holding does not apply to applicants' claims because the claims in *Eolas* provide a result communicated to the user. However, the matter of the claims in *Eolas* is of no consequence to the blanket statement that **software code alone is patentable**. Had the Federal Circuit meant to apply the statement to only the claims at issue in that case, they would have stated such. In fact, the court *subsequently* stated that, "[t]he patented invention in this case is such a software product," thus applying the specific facts of the case to the general rule created by the Federal Circuit. Creating a rule and then applying facts of the case to the rule is evidence that the court meant for this general rule, that software code alone is patentable, to stand independently.

Therefore, in view of at least the foregoing, rejection of all independent claims, and associated dependent claims, under 35 U.S.C. §101, whether or not pertaining to software code, is preemptive, and thus, should be reversed.

B.   Conclusion

For at least the above reasons, the claims currently under consideration are believed to be patentable as they recite statutory subject matter. Accordingly, it is respectfully requested that the rejection of claims 1-21 be reversed.

If any additional fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063 [MSFTP637US].

Respectfully submitted,
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VIII. Claims Appendix (37 C.F.R. §41.37(c)(1)(viii))

1.   A computer-implemented system that test loads a server comprising:

a dynamic load adjustor component that dynamically adjusts user characteristics based at least in part on a browser type, for distribution thereof as a percentage of total requests sent to a server being load tested.

2.   The system of claim 1, further comprising a profile characteristic data store that supplies the dynamic load adjustor component with weighting for a characteristic defined in a user profile.

3.   The system of claim 2, the dynamic load adjustor component further comprises a weighting designator that randomly assigns to users characteristics based on weightings defined in the user profile.

4.   The system of claim 2, the characteristic comprises at least one of: network connections, browser types, and load patterns.

5.   The system of claim 2, the characteristic statistically determined based on web log records.

6.   The system of claim 2, the characteristic predetermined in a single user profile.

7.   The system of claim 1, further comprising a load coordinator component that adjusts an intensity of a load test based on a current distribution of users entering and leaving the server relative to a desired test load.

8.   The system of claim 1, further comprising an artificial intelligence component.

9.   The system of claim 1, further comprising a closed loop control to enable a continual and sustained rate of requests to the server.

10.   A machine-implemented system that stresses a server, comprising:

an execution engine that generates a scenario that loads the server *via* a plurality of users, the plurality of users dynamically adjusted based on predetermined weightings of a user profile having weighted characteristics that comprises at least a browser type therein, wherein the scenario distributes user characteristics as a percentage of total requests.

11.   The system of claim 10, the scenario comprises at least one of a test mix and a load profile.

12.   The system of claim 10, further comprising a control input that adjusts rate of requests loaded onto the server.

13.   The system of claim 10, further comprising a queuing mechanism that retrieves and sorts requests to be sent to the server.

14.   The system of claim 10, further comprising a scheduler that determines number of requests to be generated for an upcoming period.

15.   The system of claim 10, the requests sorted according to a time function for execution.

16.   A computer-implemented method for load testing a server comprising:

assigning weights to user characteristics in a user profile;

dynamically adjusting the user characteristics based on one or more browser types during the testing of the server; and

distributing the user characteristics as a percentage of total requests sent to the server.

17.   The method of claim 16, further comprising comparing a current load on the server with a desired load.

18.   The method of claim 17, further comprising creating a new user if the current load falls below a desired load.

19.   (Previously Presented) The method of claim 17, further comprising reducing the current load by one upon ending an iteration, if the current load rises above the desired load.

20.   (Previously Presented) The method of claim 16, further comprising controlling a rate of loading *via* a feedback loop control.

21.   A machine-implemented system for test loading a server comprising:
        means for dynamically adjusting user characteristics while loading the server; and
        means for distributing the user characteristics as a percentage of total requests sent to the server, each user characteristic including at least a browser type.

IX.   Evidence Appendix (37 C.F.R. §41.37(c)(1)(ix))

        None.

X.   Related Proceedings Appendix (37 C.F.R. §41.37(c)(1)(x))

        None.